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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/675,177

09/30/2003

Timothy H. Daubenspeck

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IBM MICROELECTRONICS
INTELLECTUAL PROPERTY LAW
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ESSEX JUNCTION, VT 05452

EXAMINER

DUONG, KHANH B

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No. 10/675,177	Applicant(s) DAUBENSPECK ET AL.	
	Examiner Khanh B. Duong	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u>2/3/05</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/30/03</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

This Office Action is in response to the filing of the application on September 30, 2003.

Claims 1 to 9 and 21 to 29 were cancelled.

Accordingly, claims 10 to 20 are pending.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: METHOD FOR FABRICATING A TRIPLE DAMASCENE FUSE.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10 to 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 10:

line 9, "removing said first dielectric layer from over said mandrel" is unclear and confusing should be --removing said second dielectric layer from over said mandrel--

Regarding claim 16:

line 9, "removing said first dielectric layer from over said mandrel" is unclear and confusing should be --removing said second dielectric layer from over said mandrel--;

line 9 to 10, "and said first dielectric layer and a portion of said first dielectric layer" is unclear and confusing and should be just --and a portion of said first dielectric layer--; and

line 11 to 12, "removing said first dielectric layer and a portion of said second dielectric" is unclear and confusing and should be -- removing said second dielectric layer and a portion of said first dielectric--.

*** Other claims are rejected as depending on the rejected base claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Yeh (U.S. Patent No. 5,169,802).

Regarding claim 10, Yeh discloses in FIG. 3 to 9 a method for fabricating a semiconductor device, comprising: providing a substrate (10, 11 and 12); forming a first dielectric layer 14 on a top surface of said substrate; forming a dielectric mandrel 27 on a top surface of said first dielectric layer 14; forming a second dielectric layer 15 on top of said mandrel 27 and a top surface of said first dielectric layer 14; forming contact openings 24 and 25 down to said substrate in said first and second dielectric layers 14 and 15 on opposite sides of said mandrel 27; removing said second dielectric layer 15 from over said mandrel 27 between

said contact openings 24 and 25 to form a trough 22; and filling said trough 22 and contact openings 24 and 25 with a conductor 16.

Furthermore, the recitation "a fuse for a semiconductor device" has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim following the preamble is self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951).

Allowable Subject Matter

Claims 11 to 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 16 to 20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record, taken alone or in combination, fairly shows or suggests all the process limitations as claimed.

Regarding claim 16, none of the prior art of record fairly discloses a method for fabricating a fuse for a semiconductor device, comprising: *forming a second dielectric layer on top of said mandrel and a top surface of said first dielectric layer; forming, in a first region, contact openings down to said substrate in said first and second dielectric layers on opposite sides of said mandrel; removing said second dielectric layer from over said mandrel and a portion of said first dielectric layer between said contact openings and said mandrel to form a*

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trough and simultaneously, in a second region, removing said second dielectric layer and a portion of said first dielectric to form a trench; and filling said trough and contact openings with a conductor to form a fuse and filling said trench with the conductor to form a wire.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


The following U.S. Patents disclose relevant teachings regarding the instant claimed invention: Bouldin et al. '207 and Bouldin et al. '914.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh B. Duong whose telephone number is (571) 272-1836. The examiner can normally be reached on 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


KBD


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